

REMARKS

Election/Restrictions

Restriction to one of the inventions of Groups I-V has been required by the Examiner under 35 U.S.C. 121. In response, Applicants hereby affirm the election of Group I, claims 1-8, 11-13 and 17-20. Applicants respectfully submit that the invention of product claim 10 should be regrouped with the invention of Group I.

Information Disclosure Statement

Japanese reference (JP 2000-302919) does not correspond to the cited U.S. Patent 4,311,628. Attached hereto is an English Abstract of JP 2000-302919. See the attached PTO 1449.

Claim Objections

Claims 1 and 12 are objected to because the Examiner alleges that the word "perfectly" should be replaced with the term "fully" in order to clarify the claim language. Applicants have complied with the Examiner's request. This amendment is clearly a clarifying, non-narrowing claim amendment.

Claim Rejections Under 35 U.S.C. 112

Claims 4-8, 11, 13 and 17-20 are rejected by the Examiner under 35 U.S.C. 112, second paragraph, for the reasons set forth in paragraphs 14-20 of the office Action. These rejections are respectfully traversed. Reconsideration and withdrawal thereof are requested.

Claims 4-8, 11, 13 have been amended to provide suitable antecedent basis for the limitations mentioned by the Examiner. These are non-narrowing claim amendments.

The amendments to claims 4 and 6 in response to paragraph 15 of the Office Action are for mere clarity and do not narrow the scope of the invention.

The Examiner's attention is directed to pages 17-18 of the specification, which clearly supports the "gel content". Similarly, note the amendments to claim 7.

Claim 8 has been amended to provide antecedent basis for the term "haze value". The amendment to claim 8 does not narrow the scope of the claim.

Claims 11 and 13 have been amended to provide antecedent basis for the phrase "the dynamic heat treatment". The amendment to claim 8 does not narrow the scope of the claim.

The term "obtainable" has been deleted from claims 11, 13, 17, 18 and 20 and replaced with the term "produced". This is a clarifying, non-narrowing claim amendment.

In view of the amendments to the claims and the remarks hereinabove, the Examiner is requested to reconsider and withdraw the various rejections of the claims under 35 U.S.C. 112, second paragraph, for the reasons set forth in paragraphs 14-20 of the Office Action.

Claim Rejections Under 35 USC 102/103

Claims 1-8, 11 and 17-20 are rejected by the Examiner under 35 U.S.C. 102(b)/103(a) over U.S. Patent 4,220,579 to Rinehart, U.S. Patent 4,239,862 to Matthews or U.S. Patent 4,311,628 to Abdou-Sabet et al. for the reasons set forth in paragraph 23 of the Office Action. Claims 12 and 13 are free of this rejection.

Claims 1-8, 11-13 and 17-20 are rejected by the Examiner under 35 U.S.C. 102(b)/103(a) over U.S. Patent 4,728,692 to Sezaki et al. or U.S. Patent 4,818,785 to Otawa et al. for the reasons set forth in paragraph 24 of the Office Action.

The present invention as recited in claim 1 as amended relates to a fully or partially crosslinked olefinic thermoplastic elastomer composition comprising 10 to 90 parts by weight of a crystalline polyolefin (a), 90 to 10 parts by weight of an olefin-based copolymer rubber (b) (the total amount of the components (a) and (b) being 100 parts by weight) and 3 to 100 parts by weight of a paraffinic mineral oil softening agent (c) having an evaporation loss of 0.4% by weight or less at a

condition of 200 °C, atmospheric pressure and 1 hour and having a kinetic viscosity (40 °C) of 50 to 250 cSt.

The present invention is not anticipated or obvious over the teachings of the cited references. For instance, the present invention uses paraffinic oil having an evaporation loss of 0.4% or less. As a result of the present invention, it is possible to provide an olefinic thermoplastic elastomer composition superior in antifogging property (e.g. low hazing property).

The cited prior art does not disclose or suggest a composition possessing the claimed properties. Oil 1 (Tufflo 6056) and Oil 2 (Sun Par 150) described in col. 10, lines 29-37 or Rinehart (USPN 4,220,579), and the paraffinic oil described in col. 6, lines 35-38 of Matthews et al. (USPN 4,239,862) have properties which are similar to those of a paraffinic oil (c-3) (made by Idemitsu Kosan Co., trade name PW-90) used in the comparative examples of the present specification. See Table below:

		Sun Par 150 ¹⁾	Tufflo 6056	Matthews et al.	FW-90	Exp. 1 (c-1)	Exp. 2
kinetic viscosity	(cst)	93.9			87.6	102.3	97.25
viscosity index					103	103	103
flash point	(°C) (°F)	256 ~~	232 450	232 450	256	274	274
pour point	(°C)	-15			-15	-15	-15
density	(g/cm ³)	0.872	0.8762	0.8762	0.8691	0.8709	0.8705
molecular weight		530	550	550	540		
evaporation loss	(%)	?	?		0.77	0.22	0.26

1) quotation from technical bulletin by Japan Sun Oil Company, Ltd. (Annex 2)

By comparison of the properties in the Table, it is readily apparent that commercially available paraffinic oils, such as PW-90, Tufflo 6056 and Sun Par 150 have an evaporation loss of more than 0.4%.

On the other hand, the present invention uses a paraffinic oil having an evaporation loss of 0.4% or less which is obtained by cutting low molecular weight components from a commercially available paraffinic oil, such as PW-90. See Examples 1 and 2 in the present invention.

Accordingly, the claimed invention provides an olefinic thermoplastic elastomer composition having superior antifogging properties (e.g. low hazing property) by using a paraffinic oil having an evaporation loss of 0.4% or less. Therefore, in view of the remarks hereinabove, reconsideration and withdrawal of the prior art rejections are respectfully requested.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three month extension of time for filing a reply in connection with the present application, and the required fee of \$930.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADEIN THE CLAIMS

The claims have been amended as follows:

Claim 1 (Amended) A [perfectly] fully or partially crosslinked olefinic thermoplastic elastomer composition comprising 10 to 90 parts by weight of a crystalline polyolefin (a), 90 to 10 parts by weight of an olefin-based copolymer rubber (b) (the total amount of the components (a) and (b) being 100 parts by weight) and 3 to 100 parts by weight of a paraffinic mineral oil softening agent (c) having an evaporation loss of 0.4% by weight or less at a condition of 200 °C, atmospheric pressure and 1 hour and having a kinetic viscosity (40 °C) of 50 to 250 cSt.

Claim 4 (Amended) A thermoplastic elastomer composition as defined in Claim 1, wherein the thermoplastic elastomer composition is cross-linked with a crosslinking agent which is an organic peroxide.

Claim 5 (Amended) A thermoplastic elastomer composition as defined in Claim 4, wherein the thermoplastic elastomer composition has a gel content which is 98% or less.

Claim 6 (Amended) A thermoplastic elastomer composition as defined in Claim 1, wherein the thermoplastic elastomer composition is cross-linked with a crosslinking agent which is a phenolic curative.

Claim 7 (Amended) A thermoplastic elastomer composition as defined in Claim 6, wherein the thermoplastic elastomer composition has a gel content which is 98% or less.

Claim 8 (Amended) A thermoplastic elastomer composition as defined in Claim 1, wherein the thermoplastic elastomer composition has a haze value determined at a condition of 100 °C and 3 hours according to the prescription of A method of DIN 75201 which is 3% or less.

Claim 11 (Amended) A thermoplastic elastomer composition as defined in Claim 1 which is produced [obtainable] by the step of static heat treatment, subsequent to [the] dynamic heat treatment, under the following conditions:

$$Q \geq 0.1 \text{ and } t \geq 2^{-(T-110)/10}$$

wherein Q is a quantity ($\text{m}^3/(\text{hour} \cdot \text{kg})$) of hot air supplied upon drying per the unit weight of the substance to be treated, t is

a heat treatment time (hour) and T is a temperature (°C) of the hot air just before hitting the substance to be treated.

Claim 12 (Amended) A perfectly fully or partially crosslinked olefinic thermoplastic elastomer composition comprising 10 to 90 parts by weight of a crystalline polypropylene resin (a'), 90 to 10 parts by weight of an olefin-based copolymer rubber (b) (the total amount of the components (a') and (b) being 100 parts by weight), 3 to 30 parts by weight of a polyethylene resin (d) and 3 to 100 parts by weight of a paraffinic mineral oil softening agent (c) having an evaporation loss of 0.4% by weight or less at a condition of 200 °C, atmospheric pressure and 1 hour and having a kinetic viscosity (40 °C) of 50 to 250 cSt.

Claim 13 (Amended) A thermoplastic elastomer composition as defined in Claim 12 which is [obtainable] produced by the step of static heat treatment, subsequent to [the] dynamic heat treatment, under the following conditions:

$$Q \geq 0.1 \text{ and } t \geq 2^{-(T-110)/10}$$

wherein Q is a quantity ($\text{m}^3/(\text{hour} \cdot \text{kg})$) of hot air supplied upon drying per the unit weight of the substance to be treated, t is

a heat treatment time (hour) and T is a temperature (°C) of the hot air just before hitting the substance to be treated.

Claim 17 (Amended) An olefinic thermoplastic elastomer composition which is [obtainable] produced by the step of dynamically heat treating a mixture including 40 to 85 parts by weight of an ethylene-based copolymer rubber (A), 60 to 15 parts by weight of an olefinic resin (B) and 45 parts by weight or less of a softening agent (C) (the total amount of the components (A), (B) and (C) being 100 parts by weight) in the presence of a crosslinking agent and which gives a gloss value of 80% or more and a haze value of 10% or less on glass plate when subjected to the fogging test at a condition of 100 °C and 3 hours according to the prescription of A method of DIN 75201 using 10 g of the pellets.

Claim 18 (Amended) A thermoplastic elastomer composition as defined in Claim 17 which is [obtainable] produced by the step of static heat treatment, subsequent to [the] dynamic heat treatment, under the following conditions:

$$Q \geq 0.1 \text{ and } t \geq 2^{-(T-110)/10}$$

wherein Q is a quantity ($\text{m}^3/(\text{hour} \cdot \text{kg})$) of hot air supplied upon drying per the unit weight of the substance to be treated, t is a heat treatment time (hour) and T is a temperature ($^{\circ}\text{C}$) of the hot air just before hitting the substance to be treated.

Claim 20 (Amended) A thermoplastic elastomer composition which is [obtainable] produced by the step of static heat treatment, subsequent to [the] dynamic heat treatment, under the following conditions:

$$Q \geq 0.1 \text{ and } t \geq 2^{-(T-110)/10}$$

wherein Q is a quantity ($\text{m}^3/(\text{hour} \cdot \text{kg})$) of hot air supplied upon drying per the unit weight of the substance to be treated, t is a heat treatment time (hour) and T is a temperature ($^{\circ}\text{C}$) of the hot air just before hitting the substance to be treated.

Claim 24 has been added.